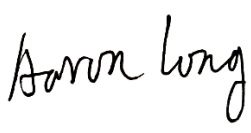
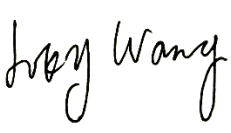
Product Name: Smart Phone **PMN: Smart Phone**	**Report No:ITEZA2-202400339RF2**
For FCC ID Model: Blade GT, Blade GT Ultra, Blade GT Play, Blade GT Pro, Blade GT Max, Blade10 Play, Blade10 Max 5G **For ISED HVIN: Blade GT**	**Security Classification: Open**
Version: V1.0	**Total Page:118**

TIRT Testing Report

Prepared By:	**Checked By:**	**Approved By:**	
Aaron Long	Stone Tang	Joky Wang	
			

Radio Test Report

FCC ID: 2AX4YBLADEGT

IC: 33167-BLADEGT

According to

47 CFR FCC Part 15, Subpart C(Section 15.247)

RSS-247 Issue 3, RSS-Gen Issue 5

ANSI C63.10:2013

Applicant:	Shenzhen DOOGEE Hengtong Technology CO.,LTD
FCC ID Address:	B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China
IC Address	B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Dafu Industrial Zone, Guanlan Aobei Community, Guanlan Street, Longhua New District, Shenzhen, Guangdong China
Manufacturer:	Shenzhen DOOGEE Hengtong Technology CO.,LTD
Address:	B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China
Sample No:	1000046260
Product Name:	Smart Phone
PMN:	Smart Phone
Brand Name:	DOOGEE
For FCC ID Model No.:	Blade GT, Blade GT Ultra, Blade GT Play, Blade GT Pro, Blade GT Max, Blade10 Play, Blade10 Max 5G
For ISED HVIN	Blade GT
Test No.:	Blade GT

Date of Receipt:	2024/09/11
Date of Test:	2024/09/11~2024/11/19
Issued Date:	2024/12/02
Testing Lab:	TIRT

Table of Contents

Page

Table of Contents

Page

Table of Contents

Page

REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
ITEZA2-202400339RF2	V1.0	Original Report.	2024.12.02	Valid

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart C RSS-247 Issue 3, RSS-Gen Issue 5				
Standard(s) Section	**Test Item**	**Test Result**	**Judgment**	**Remark**
FCC Part 15: 15.207 RSS-GEN(8.8), ANSI C63.10 :2013	AC Power Line Conducted Emissions	APPENDIX A	PASS	------
15.247(d) 15.205(a) 15.209(a) RSS-Gen(8.9), RSS-247(5.5) ANSI C63.10 :2013	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS	------
FCC PART 15:15.247(a)(2) RSS-247(5.2 a), ANSI C63.10 :2013	Bandwidth	APPENDIX E	PASS	------
15.247(b)(3) RSS-247(5.4 d) ANSI C63.10 :2013	Maximum Output Power	APPENDIX F	PASS	------
15.247(d) RSS-Gen(8.9), RSS-247(5.5) ANSI C63.10 :2013	Conducted Spurious Emission& Band Edge Emission	APPENDIX G	PASS	------
FCC PART 15:15.247(e) RSS-247(5.2 b), ANSI C63.10 :2013	Power Spectral Density	APPENDIX H	PASS	------
FCC Part 15: 15.203 RSS-GEN(6.8)	Antenna Requirement	------	PASS	Note(5)

Note:

(1) N/A denotes test is not applicable to this device.
(2) P is an abbreviation for Pass.
(3) F is an abbreviation for Fail.
(4) Conclusion determination rules of this report: Unless there are clear provisions on measurement uncertainty in the standard or customer requirements, decision by actual test data without considering measurement uncertainty.
(5) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203 and FCC Part 15: 15.203 and RSS-GEN(6.8)
(6) The device supports WLAN MIMO CDD mode

1.1 TEST FACILITY

Company:	Beijing TIRT Technology Service Co.,Ltd Shenzhen
Address:	104 Building C, Xinmingsheng Industrial Park No.132, Zhangge Old Village East Zone, Zhangge Community, Fucheng Street, Longhua District, Shenzhen, Guangdong, P. R. China
CNAS Registration Number:	CNAS L14158
A2LA Registration Number:	6049.01
FCC Accredited Lab.Designation Number:	CN1366
FCC Test Firm Registration Number:	820690
CAB identifier	CN0159
Company Number	31418
Telephone:	+86-0755-27087573

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))
The measurement uncertainty as below table:

Uncertainty	
Parameter	Uncertainty
Occupied Channel Bandwidth	±142.12 KHz
RF power conducted	±0.74 dB
RF power radiated	±3.25dB
Spurious emissions, conducted	±1.78dB
Spurious emissions, radiated (30MHz～1GHz)	±4.6dB
Spurious emissions, radiated (1GHz ~ 18GHz)	±4.9dB
Conduction Emissions(150kHz~30MHz)	±3.1 dB
Humidity	±4.6%
Temprature	±0.7°C
Time	±1.25%

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	24.5°C	50%	DC 9V from adapter	Aaron Long
Radiated Emissions-9 kHz to 30 MHz	24.5°C	50%	DC 3.87V from battery or DC 9V from adapter	Aaron Long
Radiated Emissions-30 MHz to 1000 MHz	24°C	53%	DC 3.87V from battery or DC 9V from adapter	Aaron Long
Radiated Emissions-Above 1000 MHz	26°C	53%	DC 3.87V from battery or DC 9V from adapter	Aaron Long
Bandwidth	25°C	56%	DC 3.87V from battery or DC 9V from adapter	Aaron Long
Maximum Output Power	24°C	54%	AC 120V/60Hz from Adapter	Aaron Long
ConductedSpurious Emission	25°C	62%	DC 3.87V from battery or DC 9V from adapter	Aaron Long
Power Spectral Density	26°C	60%	DC 3.87V from battery or DC 9V from adapter	Aaron Long

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Phone
Brand Name	DOOGEE
Test Model	Blade GT
For FCC ID Model No.:	Blade GT, Blade GT Ultra, Blade GT Play, Blade GT Pro, Blade GT Max, Blade10 Play, Blade10 Max 5G
PMN	Smart Phone
For ISED HVIN	Blade GT
For FCC ID Model Difference(s)	There is no difference except the name of the model
Software Version	DOOGEE-Blade_GT-EEA-Android14.0-20240830
Hardware Version//FVIN	M163-MUB-V2
Power Rating	DC 3.87V from battery or DC 11V from adapter
Operation Frequency	2412 MHz~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n :OFDM(64QAM, 16QAM, QPSK, BPSK)
Max. Output Power	IEEE 802.11b: 15.22dBm (0.033266W)

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the user's manual.

2.2 DESCRIPTION OF TEST MODES

The test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1 SISO	TX B Mode Channel 01/06/11 ANT1
Mode 2 SISO	TX G Mode Channel 01/06/11 ANT1
Mode 3 SISO	TX N(HT20) Mode Channel 01/06/11 ANT1
Mode 4 SISO	TX N(HT40) Mode Channel 03/06/09 ANT1
Mode 5 SISO	TX B Mode Channel 01/06/11 ANT2
Mode 6 SISO	TX G Mode Channel 01/06/11 ANT2
Mode 7 SISO	TX N(HT20) Mode Channel 01/06/11 ANT2
Mode 8 SISO	TX N(HT40) Mode Channel 03/06/09 ANT2
Mode 9 MIMO	TX N(HT20) Mode Channel 01/06/11 ANT1+ANT2
Mode 10 MIMO	TX N(HT40) Mode Channel 03/06/09 ANT1+ANT2

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test	
Final Test Mode	Description
Mode 9 MIMO	TX N(HT20) Mode Channel 01 ANT1+ANT2

Radiated emissions test - Below 1GHz	
Final Test Mode	Description
Mode 9 MIMO	TX N(HT20) Mode Channel 01 ANT1+ANT2

Radiated emissions test- Above 1GHz	
Final Test Mode	Description
Mode 9 MIMO	TX N(HT20) Mode Channel 01/06/11 ANT1+ANT2

Final Test Mode	Conducted RF test
Mode 1 SISO	TX B Mode Channel 01/06/11 ANT1
Mode 2 SISO	TX G Mode Channel 01/06/11 ANT1
Mode 3 SISO	TX N(HT20) Mode Channel 01/06/11 ANT1
Mode 4 SISO	TX N(HT40) Mode Channel 03/06/09 ANT1
Mode 5 SISO	TX B Mode Channel 01/06/11 ANT2
Mode 6 SISO	TX G Mode Channel 01/06/11 ANT2
Mode 7 SISO	TX N(HT20) Mode Channel 01/06/11 ANT2
Mode 8 SISO	TX N(HT40) Mode Channel 03/06/09 ANT2
Mode 9 MIMO	TX N(HT20) Mode Channel 01/06/11 ANT1+ANT2
Mode 10 MIMO	TX N(HT40) Mode Channel 03/06/09 ANT1+ANT2

NOTE:
(1) All the bit rate of transmitter have been tested and found the lowest rate is found tobe the worst case and recorded.
(2) For radiated emission above 1 GHz test, the spurious points of 1GHz~18GHz and 18GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

Channel List:

CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20) CH03 - CH09 for IEEE 802.11n(HT40)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

Table for Filed Antenna:

Ant.	Manufactured	Model Name	Antenna Type	Connector	Gain (dBi)
1	Shenzhen 3Good Wireless Communication Co.,LTD.	M24C	PIFA	N/A	1.54
2	Shenzhen 3Good Wireless Communication Co.,LTD.	M24C	PIFA	N/A	-1.72

Note: Antenna information is provided by applicant.
The antenna is for testing and fixation purposes.
.

Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(N_{ANT}/N_{SS}=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain "DG" is calculated as following table.

Mode	ANT1(dBi)	ANT2(dBi)	DG for Power (dBi)	DG for PSD(dBi)	Power Limit Reduction (dBi)	PSD Limit Reduction (dBi)
2.4GWIFI	1.54	-1.72	1.54	4.55	0	0

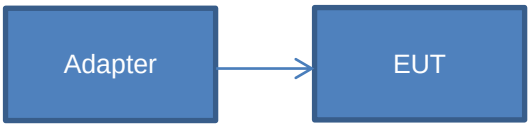
Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

2.3. ACCESSORIES OF DEVICE (EUT)

Accessories	:	AC Adapter
Manufacturer	:	Shenzhen Theone Electronic CO.,Ltd
Model	:	TP182C-US
Ratings	:	Input: AC100-240V~ 50/60Hz 0.5A Max Output USB-A: 5.0V⎓3.0A 15.0W; 9.0V⎓2.0A 18.0W, 12.0V⎓1.5A 18.0W; Power:18.0W Max

2.4 BLOCKDIAGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED



2.5 SUPPORT UNITS

No.	Description	Manufacturer	Model	Note
1	N/A	N/A	N/A	N/A

3.AC POWER LINE CONDUCTED EMISSIONS

3.1LIMIT

Frequency of Emission (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 -0.5	66 to 56*	56 to 46*
0.5-5.0	56	6
5.0 -30.0	60	50

Note:

(1) The tighter limit applies at the band edges.
(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

3.2TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipmentpowered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the groundplane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

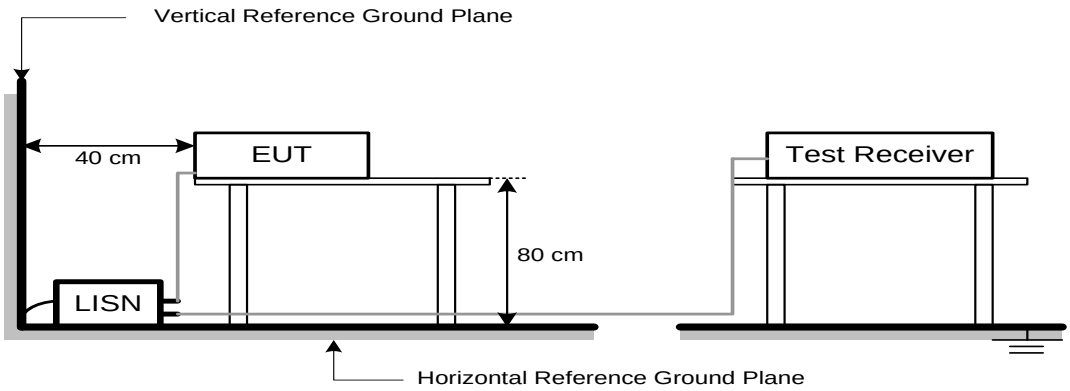
The following table is the setting of the receiver:

Receiver Parameters	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.3DEVIATIONFROMTESTSTANDARD

No deviation.

3.4TESTSETUP



The LISN edge is arranged parallel to the edge of the test table
The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT

3.5EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion -GFSK (1M/2M) mode, The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.6 TEST RESULTS

Please refer to the APPENDIX-A

4. RADIATED EMISSIONS

4.1LIMIT

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

RSS-GEN Restricted frequency band

Table 7 – Restricted frequency bands[Note 1]		
MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 – 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6

8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 – 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 – 8500	
108 – 138		

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSS.

15.209 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009-0.490	300	2400/F(KHz)	/
0.490-1.705	30	24000/F(KHz)	/
1.705-30	30	30	29.5
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: The peak limit is 20 dB higher than the average limit

Table 5 – General field strength limits at frequencies above 30 MHz	
Frequency (MHz)	**Field strength (μV/m at 3 m)**
30 – 88	100
88 – 216	150
216 – 960	200
Above 960	500

Table 6 – General field strength limits at frequencies below 30 MHz		
Frequency	**Magnetic field strength (H-Field) (μA/m)**	**Measurement distance (m)**
9 - 490 kHz[Note 1]	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

4.2TEST PROCEDURE

a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1GHz)
i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for PK value 1MHz / 1/THz for AVG value

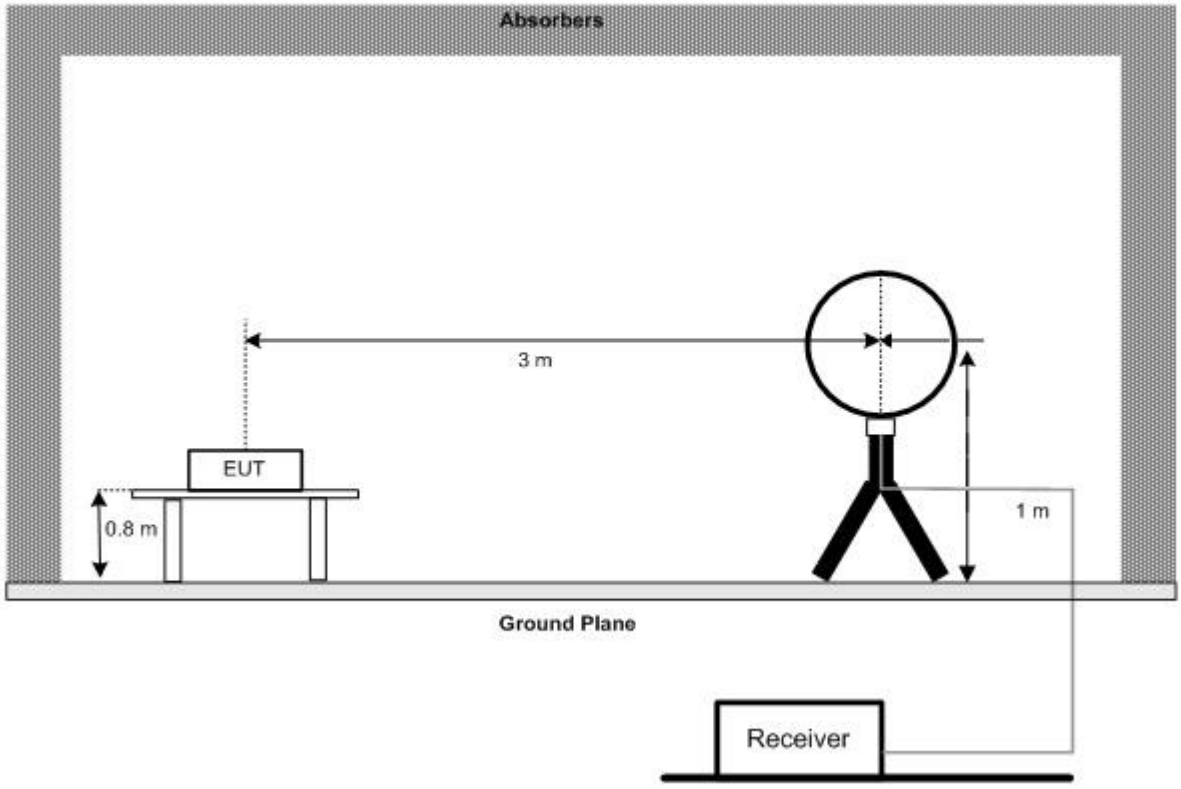
Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector
Start ~ Stop Frequency	1 GHz~26.5GHz for PK/AVG detector

4.3DEVIATIONFROMTESTSTANDARD

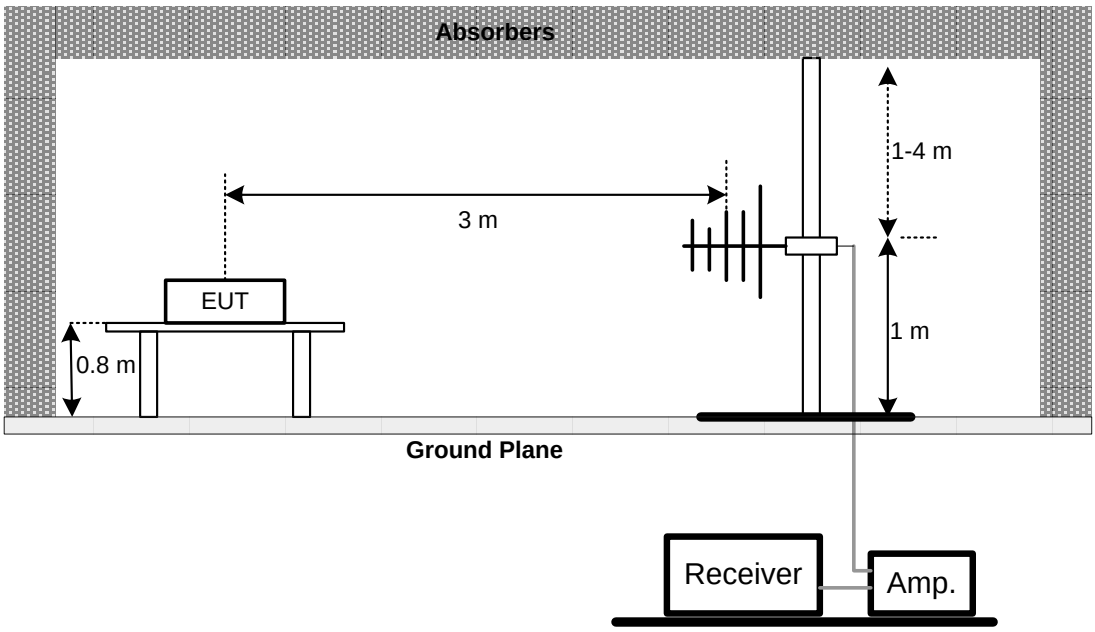
No deviation.

4.4TESTSETUP

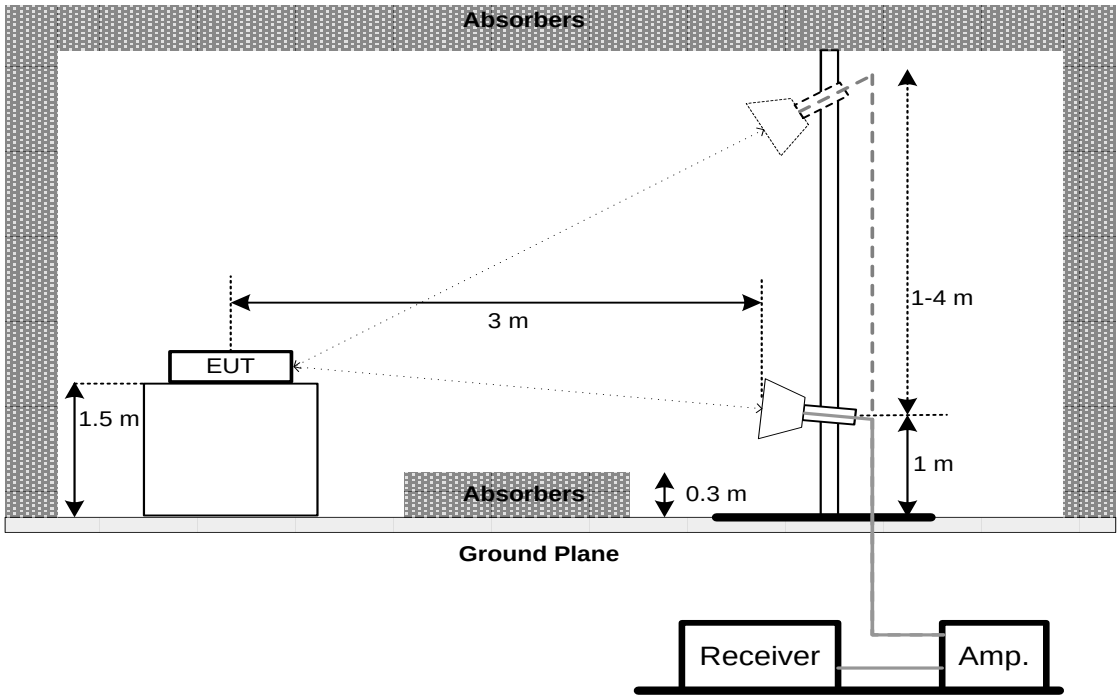
9 kHz to 30 MHz



30 MHz to 1 GHz



Above 1 GHz


Absorbers
3 m
1-4 m
EUT
1.5 m
Absorbers
0.3 m
1 m
Ground Plane
Receiver
Amp.

4.5EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULT- 9kHz TO 30MHz

Please refer to the APPENDIX-B

Remark:

(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.7 TEST RESULT- 30MHz TO 1000MHz

Please refer to the APPENDIX-C

4.8 TEST RESULT- ABOVE 1000MHz

Please refer to the APPENDIX-D

Remark:

(1) No limit:This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

5.BANDWIDTH

5.1LIMIT

Section	Test Item	Limit
FCC 15.247(a)(2) RSS-247(5.2 a)	6dB Bandwidth	>= 500 kHz
	99% Emission Bandwidth	-

5.2TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. The following table is the setting of the spectrum analyzer:

For 6 dB Bandwidth:

Spectrum Parameters	Setting
Span Frequency	> Measurement Bandwidth
RBW	100 kHz
VBW	300kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

For 99% Emission Bandwidth:

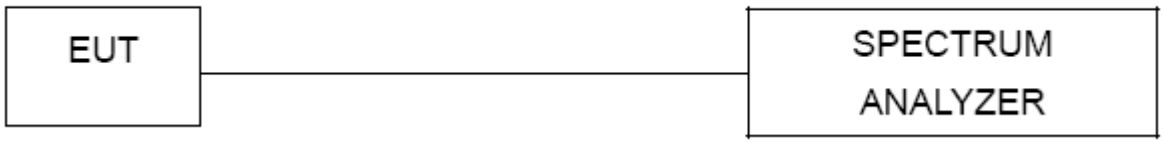
Spectrum Parameters	Setting
Span Frequency	Between 1.5 times and 5.0 times the OBW
RBW	50kHz
VBW	200kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Compute the trace by integrating the spectrum, finally, maxhold displays the View

5.3DEVIATION FROM STANDARD

No deviation.

5.4TEST SETUP



5.5EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6TESTRESULTS

Please refer to the APPENDIX-E

6.MAXIMUM OUTPUT POWER

6.1LIMIT

Section	Test Item	Limit
FCC 15.247(b)(3) RSS-247(5.4 d)	Maximum Output Power	1.0000 watt or 30.00dBm

6.2TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. The following table is the setting of the spectrum analyzer:

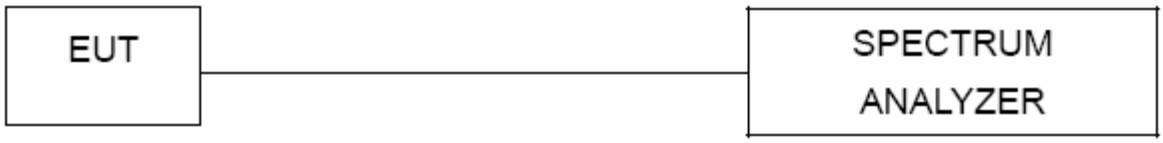
Spectrum Parameters	Setting
Span Frequency	⩾ 3×RBW
RBW	2 MHz
VBW	5 MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Compute the trace by integrating the spectrum, finally, maxhold displays the View

6.3DEVIATION FROM STANDARD

No deviation.

6.4TEST SETUP



6.5EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6TESTRESULTS

Please refer to the APPENDIX-F

7.CONDUCTED SPURIOUS EMISSION

7.1LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. Please refer section RSS-GEN&15.247.

7.2TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. The following table is the setting of the spectrum analyzer:

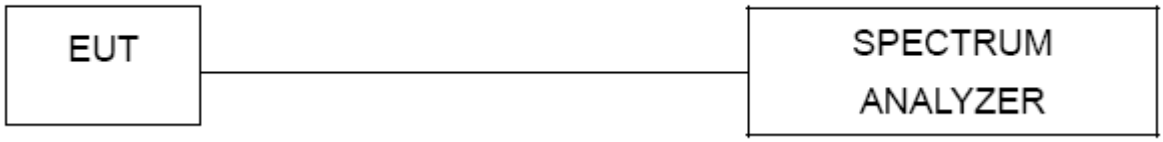
Spectrum Parameters	Setting
Start Frequency	30 MHz
Stop Frequency	26.5 GHz
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Compute the trace by integrating the spectrum, finally, maxhold displays the View

7.3DEVIATION FROM STANDARD

No deviation.

7.4TEST SETUP



7.5EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to the APPENDIX-G

8.POWER SPECTRAL DENSITY

8.1LIMIT

Section	Test Item	Limit
FCC 15.247(e) RSS-247(5.2 b)	Power Spectral Density	8 dBm (in any 3 kHz)

8.2TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. The following table is the setting of the spectrum analyzer:

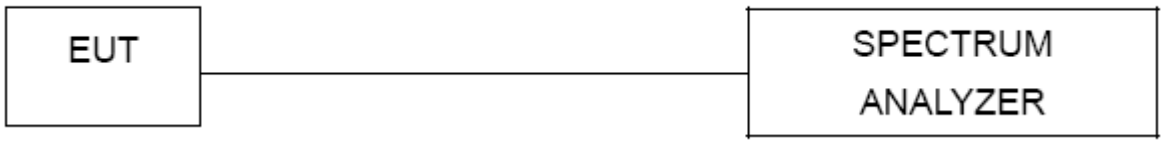
Spectrum Parameters	Setting
Span Frequency	2 MHz (1 Mbps) / 4 MHz (2 Mbps)
RBW	3 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Compute the trace by integrating the spectrum, finally, maxhold displays the View

8.3DEVIATION FROM STANDARD

No deviation.

8.4TEST SETUP



8.5EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULTS

Please refer to the APPENDIX-H

9. ANTENNA REQUIREMENT

9.1STANDARD REQUIREMENT

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

9.2ANTENNA CONNECTED CONSTRUCTION

The antenna connector is unique antenna and no consideration of replacement. Please see EUT photo for details.

9.3RESULTS

The EUT antenna is PIFA antenna. It complies with the standard requirement.

10. MEASUREMENT INSTRUMENTS LIST

Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI Receiver	Rohde&Schwarz	ESIB 40	YH-TIRT-SAC-966-20220911	2024/01/05	2025/01/04
Integral Antenna	Schwarzbeck	VULB 9163	01314	2022.12.11	2024.12.10
Integral Antenna	Rohde&Schwarz	HF907	RSM2991424	2022.12.11	2024.12.10
Preamplifier	Emtrace	RP01A	'02017	2024/01/05	2025/01/04
Preamplifier	Schwarzbeck	BBV9744	00143	2024/01/05	2025/01/04
Loop Antenna	ZHINAN	ZN30900A	12024	2024/01/05	2025/01/04
Horn Antenna	Schwarzbeck	BBHA9170	00956	2024/01/05	2025/01/04
RF Cable	/	LMR400UF-NMNM-7.0M	/	2024/01/05	2025/01/04
RF Cable	/	SFT2050PUR-NMNM-7.0M	/	2024/01/05	2025/01/04
EMI Receiver	Rohde&Schwarz	ESR7	1316.3003K07-102611-mk	2024/11/02	2025/11/01
LISN	Rohde&Schwarz	ENV216	3560.655.12-102915-Bp	2024/11/02	2025/11/01
RF Cable	\	SFT2050PUR-NMNM-2.0M	\	2024/01/05	2025/01/04
Spectrum analyzer	ROHDE&SCHWARZ	FSU26	200732	2024/01/05	2025/01/04
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	101722	2024/01/05	2025/01/04
Filter	HEWLETT PACKARD	JS0806-F	19K8060209	2024/01/05	2025/01/04

11. PHOTOS OF TEST SETUP

Reference to the **appendix I** Test Setup Photo for details.

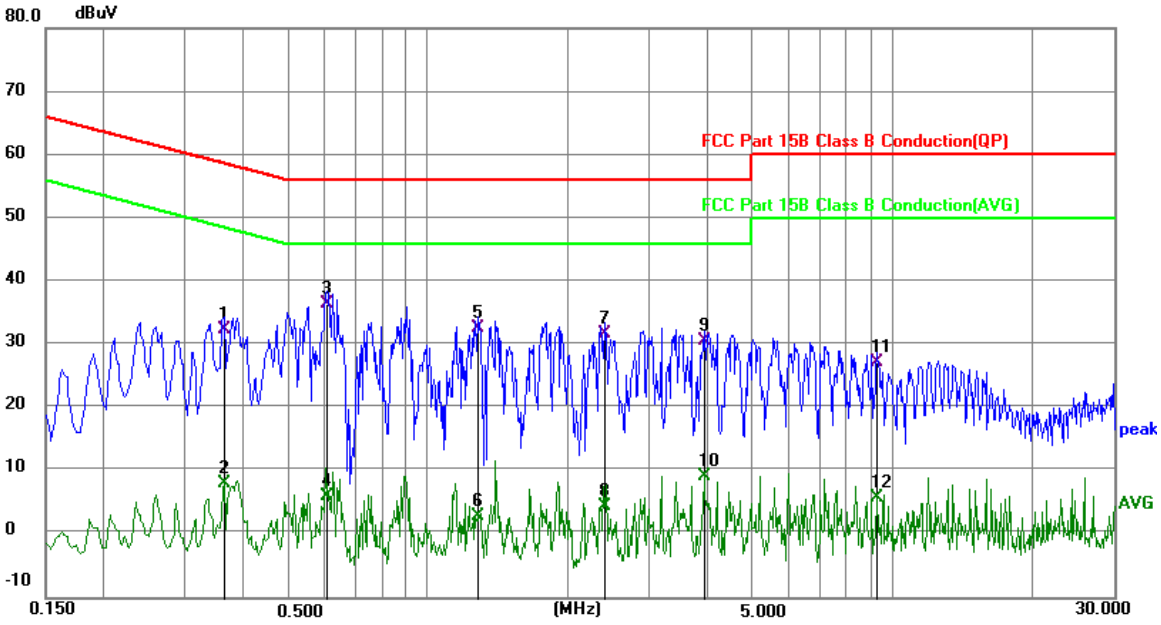
12. PHOTOS OF EUT

Reference to the **appendix II external photos** and **appendix III internal photos** for details.

APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

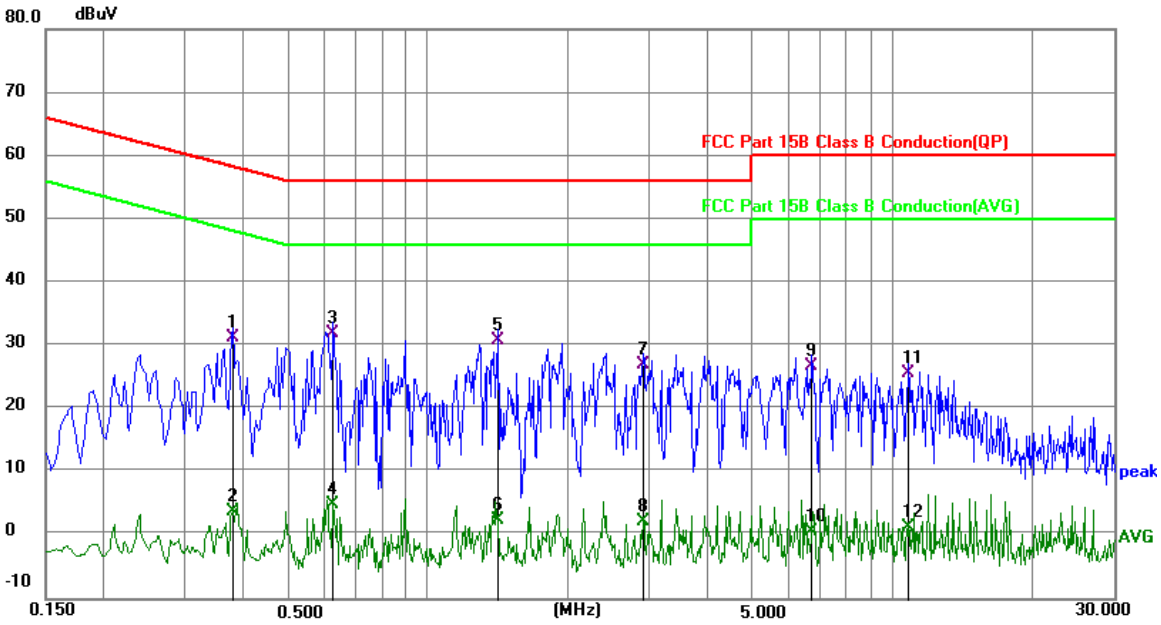
Only show the worst mode: TX N(HT20) Mode Channel 01 ANT1+ANT2:

Polarization: Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3619	22.50	10.01	32.51	58.68	-26.17	QP	P	
2	0.3619	-1.84	10.01	8.17	48.68	-40.51	AVG	P	
3 *	0.6059	26.20	10.29	36.49	56.00	-19.51	QP	P	
4	0.6059	-4.26	10.29	6.03	46.00	-39.97	AVG	P	
5	1.2780	22.77	9.76	32.53	56.00	-23.47	QP	P	
6	1.2780	-6.75	9.76	3.01	46.00	-42.99	AVG	P	
7	2.4020	21.86	9.89	31.75	56.00	-24.25	QP	P	
8	2.4020	-5.28	9.89	4.61	46.00	-41.39	AVG	P	
9	3.9420	20.54	10.08	30.62	56.00	-25.38	QP	P	
10	3.9420	-0.87	10.08	9.21	46.00	-36.79	AVG	P	
11	9.2820	16.89	10.31	27.20	60.00	-32.80	QP	P	
12	9.2820	-4.34	10.31	5.97	50.00	-44.03	AVG	P	

Polarization: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3780	21.23	10.01	31.24	58.32	-27.08	QP	P	
2	0.3780	-6.24	10.01	3.77	48.32	-44.55	AVG	P	
3 *	0.6260	21.72	10.29	32.01	56.00	-23.99	QP	P	
4	0.6260	-5.22	10.29	5.07	46.00	-40.93	AVG	P	
5	1.4179	21.11	9.74	30.85	56.00	-25.15	QP	P	
6	1.4179	-7.17	9.74	2.57	46.00	-43.43	AVG	P	
7	2.9100	17.05	9.89	26.94	56.00	-29.06	QP	P	
8	2.9100	-7.57	9.89	2.32	46.00	-43.68	AVG	P	
9	6.7259	16.53	10.21	26.74	60.00	-33.26	QP	P	
10	6.7259	-9.52	10.21	0.69	50.00	-49.31	AVG	P	
11	10.8059	15.31	10.30	25.61	60.00	-34.39	QP	P	
12	10.8059	-9.01	10.30	1.29	50.00	-48.71	AVG	P	

APPENDIX B - RADIATED EMISSION -9 KHZ TO 30 MHZ

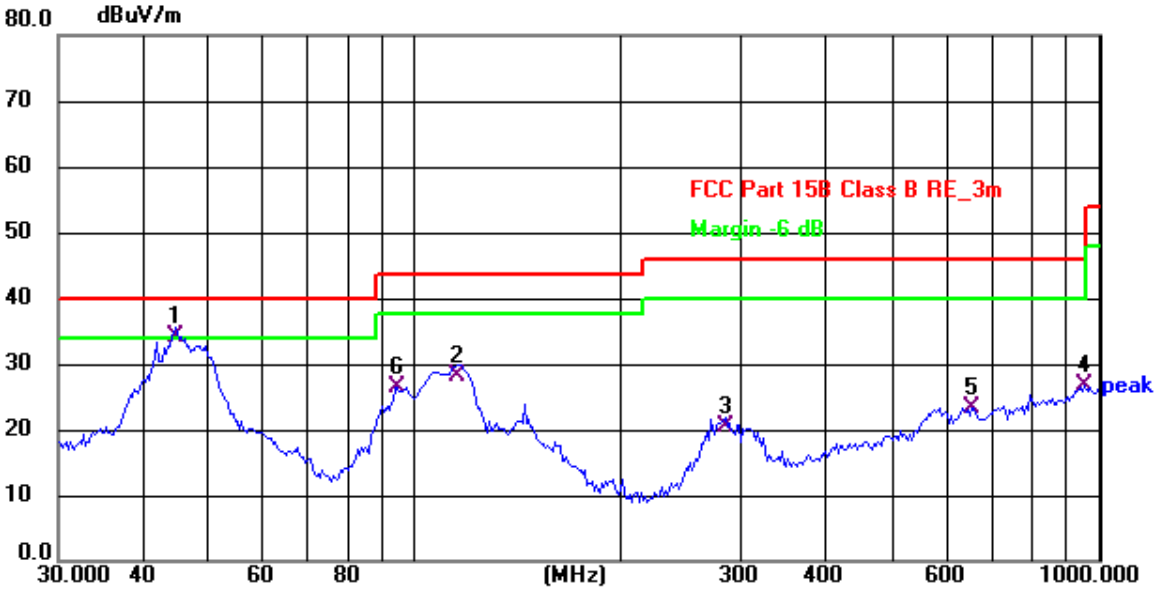
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

APPENDIX C - RADIATED EMISSION-30 MHZ TO 1000 MHZ

Only show the worst mode:

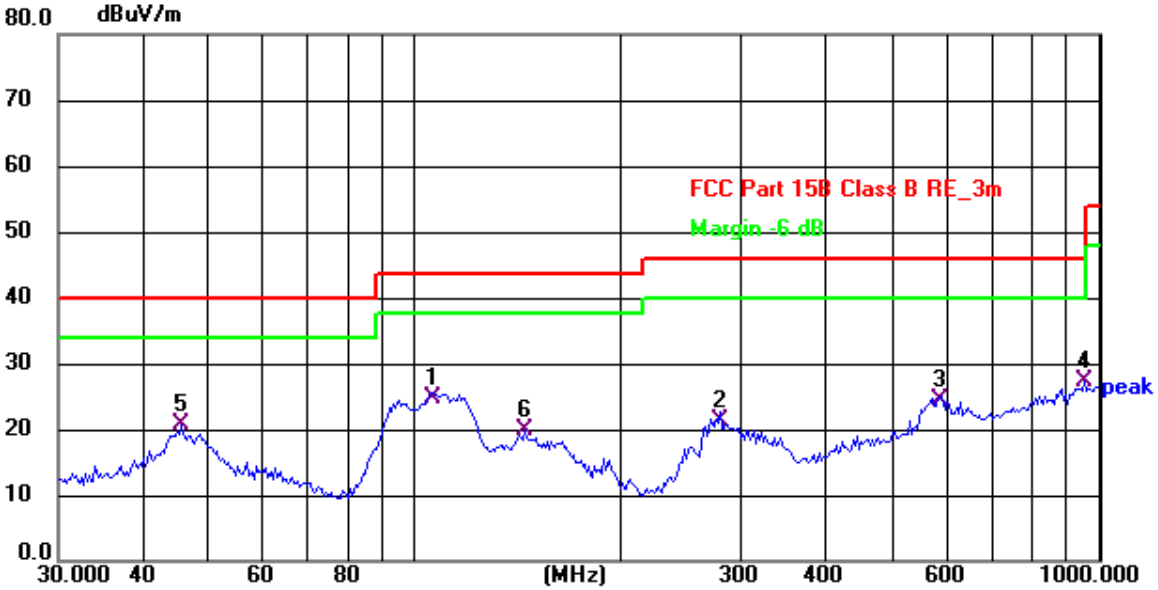
Test Mode	TX N(HT20) Mode Channel 01 ANT1+ANT2	Polarization	Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	44.431	46.39	-12.14	34.25	40.00	-5.75	QP	100	360	P	
2	115.320	42.23	-14.07	28.16	43.50	-15.34	QP	100	360	P	
3	284.977	31.88	-11.45	20.43	46.00	-25.57	QP	100	360	P	
4	952.094	27.05	-0.20	26.85	46.00	-19.15	QP	100	90	P	
5	651.942	27.41	-4.01	23.40	46.00	-22.60	QP	100	360	P	
6	94.098	42.59	-16.21	26.38	43.50	-17.12	QP	100	90	P	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

Test Mode	TX N(HT20) Mode Channel 01 ANT1+ANT2	Polarization	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	106.013	39.51	-14.88	24.63	43.50	-18.87	QP	200	90	P	
2	279.044	33.11	-11.71	21.40	46.00	-24.60	QP	200	180	P	
3	586.844	29.95	-5.56	24.39	46.00	-21.61	QP	200	0	P	
4 *	952.094	27.45	-0.20	27.25	46.00	-18.75	QP	200	190	P	
5	45.375	32.91	-12.20	20.71	40.00	-19.29	QP	200	90	P	
6	144.335	31.71	-11.92	19.79	43.50	-23.71	QP	200	180	P	

REMARKS:
(1) Measurement Value = Reading Level + Correct Factor.
(2) Margin Level = Measurement Value - Limit Value.

APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ

ABOVE 1000 MHz

Note: All the modes have been tested and recorded worst mode in the report.

Modulation Type: IEEE 802.11N20MIMO

Channel 1 / 2412 MHz									
Frequency	Ant.Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor	Emission Level		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4824.00	H	54.38	51.2	-1.88	52.50	49.32	74	54	-21.50
7236.00	H	44.56	---	7.8	52.36	---	74	54	-21.64
---	H	---	---	---	---	---	---	---	---
4824.00	V	55.63	---	-1.88	53.75	---	74	54	-20.25
7236.00	V	43.06	---	7.8	50.86	---	74	54	-23.14
---	V	---	---	---	---	---	---	---	---

Channel 6 / 2437 MHz									
Frequency	Ant.Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor	Emission Level		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4874.00	H	55.12	52.31	-1.59	53.53	50.72	74	54	-20.47
7311.00	H	42.04	---	8.1	50.14	---	74	54	-23.86
---	H	---	---	---	---	---	---	---	---
4874.00	V	54.16	---	-1.59	52.57	---	74	54	-21.43
7311.00	V	42.97	---	8.1	51.07	---	74	54	-22.93
---	V	---	---	---	---	---	---	---	---

Channel 11 / 2462 MHz									
Frequency	Ant.Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor	Emission Level		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4924.00	H	55.24	51	-1.3	53.94	49.7	74	54	-20.06
7386.00	H	41.17	---	9	50.17	---	74	54	-23.83
---	H	---	---	---	---	---	---	---	---
4924.00	V	55.27	---	-1.3	53.97	---	74	54	-20.03
7386.00	V	43.77	---	9	52.77	---	74	54	-21.23
---	V	---	---	---	---	---	---	---	---

Notes:

1). Radiated emissions measured in frequency range from 9 KHz~10th harmonic or 26.5GHz (which is less) were made with an instrument using Peak detector mode.

2). Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

3). Worst case data at 1Mbps at IEEE 802.11b.

4). Measured Level = Reading Level + Factor, Margin = Measured Level – Limit

Test Result of Radiated Spurious at Band edges
Note: All tests below include both horizontal and vertical, only show the worst mode data

Test Results				PASS				
Frequency Range				2310MHz~2410MHz				
Test Mode				TX B Mode Channel 01 ANT1				
No.	Freq MHz	Polarity	Reading (dBuV/m)	Correct Factor	Result (dBuV/m)	Limit (dBuV/m)	Margin	Remark
1	2390	H	74.28	-21.47	52.81	74.00	-21.19	Peak
2	2390	H	--	-21.47	--	54.00	--	Avg
3	2400	H	78.67	-26.12	52.55	74.00	-21.45	Peak
4	2400	H	--	-26.12	--	54.00	--	Avg
1	2390	V	75.17	-21.47	53.70	74.00	-20.30	Peak
2	2390	V	--	-21.47	--	54.00	--	Avg
3	2400	V	78.97	-26.12	52.85	74.00	-21.15	Peak
4	2400	V	--	-26.12	--	54.00	--	Avg
Test Results				PASS				
Frequency Range				2450MHz~2550MHz				
Test Mode				TX B Mode Channel 11 ANT1				
1	2483.5	H	78.60	-25.29	53.31	74.00	-20.69	Peak
2	2483.5	H	--	-25.29	--	54.00	--	Avg
1	2483.5	V	79.26	-25.29	53.97	74.00	-20.03	Peak
2	2483.5	V	--	-25.29	--	54.00	--	Avg

Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.

2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.

Result=Reading + Correct Factor.

Margin= Result-Limit.

3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.

Test Results				PASS				
Frequency Range				2310MHz~2410MHz				
Test Mode				TX G Mode Channel 01 ANT1				
No.	Freq MHz	Polarity	Reading (dBuV/m)	Correct Factor	Result (dBuV/m)	Limit (dBuV/m)	Margin	Remark
1	2390	H	74.89	-21.47	53.42	74.00	-20.58	Peak
2	2390	H	--	-21.47	--	54.00	--	Avg
3	2400	H	78.80	-26.12	52.68	74.00	-21.32	Peak
4	2400	H	--	-26.12	--	54.00	--	Avg
1	2390	V	74.33	-21.47	52.86	74.00	-21.14	Peak
2	2390	V	--	-21.47	--	54.00	--	Avg
3	2400	V	79.41	-26.12	53.29	74.00	-20.71	Peak
4	2400	V	--	-26.12	--	54.00	--	Avg
Test Results				PASS				
Frequency Range				2450MHz~2550MHz				
Test Mode				TX G Mode Channel 11 ANT1				
1	2483.5	H	79.10	-25.29	53.81	74.00	-20.19	Peak
2	2483.5	H	--	-25.29	--	54.00	--	Avg
1	2483.5	V	78.50	-25.29	53.21	74.00	-20.79	Peak
2	2483.5	V	--	-25.29	--	54.00	--	Avg

Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.

2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.

Result=Reading + Correct Factor.

Margin= Result-Limit.

3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.

Test Results				PASS				
Frequency Range				2310MHz~2410MHz				
Test Mode				TX N(HT20) Mode Channel 01 ANT1+ANT2				
No.	Freq MHz	Polarity	Reading (dBuV/m)	Correct Factor	Result (dBuV/m)	Limit (dBuV/m)	Margin	Remark
1	2390	H	74.55	-21.47	53.08	74.00	-20.92	Peak
2	2390	H	--	-21.47	--	54.00	--	Avg
3	2400	H	79.04	-26.12	52.92	74.00	-21.08	Peak
4	2400	H	--	-26.12	--	54.00	--	Avg
1	2390	V	74.88	-21.47	53.41	74.00	-20.59	Peak
2	2390	V	--	-21.47	--	54.00	--	Avg
3	2400	V	79.31	-26.12	53.19	74.00	-20.81	Peak
4	2400	V	--	-26.12	--	54.00	--	Avg
Test Results				PASS				
Frequency Range				2450MHz~2550MHz				
Test Mode				TX N(HT20) Mode Channel 11 ANT1+ANT2				
1	2483.5	H	79.18	-25.29	53.89	74.00	-20.11	Peak
2	2483.5	H	--	-25.29	--	54.00	--	Avg
1	2483.5	V	78.55	-25.29	53.26	74.00	-20.74	Peak
2	2483.5	V	--	-25.29	--	54.00	--	Avg

Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.

2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.

Result=Reading + Correct Factor.

Margin= Result-Limit.

3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.

Test Results				PASS				
Frequency Range				2310MHz~2410MHz				
Test Mode				TX N(HT40) Mode Channel 03 ANT1+ANT2				
No.	Freq MHz	Polarity	Reading (dBuV/m)	Correct Factor	Result (dBuV/m)	Limit (dBuV/m)	Margin	Remark
1	2390	H	74.97	-21.47	53.50	74.00	-20.50	Peak
2	2390	H	--	-21.47	--	54.00	--	Avg
3	2400	H	79.00	-26.12	52.88	74.00	-21.12	Peak
4	2400	H	--	-26.12	--	54.00	--	Avg
1	2390	V	75.01	-21.47	53.54	74.00	-20.46	Peak
2	2390	V	--	-21.47	--	54.00	--	Avg
3	2400	V	79.57	-26.12	53.45	74.00	-20.55	Peak
4	2400	V	--	-26.12	--	54.00	--	Avg
Test Results				PASS				
Frequency Range				2450MHz~2550MHz				
Test Mode				TX N(HT40) Mode Channel 11 ANT1+ANT2				
1	2483.5	H	78.95	-25.29	53.66	74.00	-20.34	Peak
2	2483.5	H	--	-25.29	--	54.00	--	Avg
1	2483.5	V	79.04	-25.29	53.75	74.00	-20.25	Peak
2	2483.5	V	--	-25.29	--	54.00	--	Avg

Note: 1. Means other frequency and mode comply with standard requirements and at least have 20dB margin.

2. Correct Factor=Cable Loss+ Antenna Factor-Amplifier Gain.

Result=Reading + Correct Factor.

Margin= Result-Limit.

3. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.